AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

Claims 1-41 (CANCELLED)

42. (CURRENTLY AMENDED) An optical band pass device, comprising:

a. a first substrate having a very low absorption loss including an inner surface and an outer surface; said inner surface thereof having a very high reflective coefficient of r1;

b. a second substrate having a very low absorption loss including an inner surface and an outer surface; said inner surface thereof including: a transmission-optimized optical portion to facilitate input of light beams into said device and a reflective portion having a reflective coefficient of r2 wherein r1 is greater than r2; said outer surface thereof having a transmission coefficient of t to facilitate input and output of light beams in and out of said device; said second substrate mounted parallel to said first substrate with respective inner surfaces facing each other;

c. a beam collimating element positioned to guide ~~for guiding~~ an input light beam to travel through said optical portions of said second substrate, to: 1) hit a first point on said inner surface of said first substrate, 2) reflect off of said first point, at a

near normal incidence angle, towards a second point on said reflective portion of said inner surface of said second substrate, said second point spaced from said optical portions so as not to interfere with said input light beam, 3) hit said second point and a) partially reflect off of said second point towards said reflective portion of said inner surface of said second substrate such that there is no interference of reflected beams within said device and b) partially travel through said respective surfaces of said second substrate to generate said one of said output light beams;

d. an optical medium having a predetermined refractive index located between said inner surfaces of said first and second substrates; and;

e. an optical converging element spaced from said outer surface of said second substrate for converging said output light beams incident thereon.

43. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 42 wherein said near normal incidence angle is approximately 1 degree.

44. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 42 wherein said input light beam is a collimated light beam.

45. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 42 further comprising an adjustable spacer positioned between said inner surfaces of said first and second substrates for parallel mounting of said first and second substrates and for adjusting the spacing between said inner surfaces of said first and second substrates;

46. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 42 further comprising a refractive index adjuster for adjusting the refractive index of

said optical medium;

47. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 45 further comprising a first voltage source connected to said adjustable spacer for electrically adjusting the spacing between said inner surfaces of said first and second substrates.

48. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 46 further comprising a second voltage source connected to said refractive index adjuster for electrically adjusting the refractive index of said optical medium.

49. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 47 wherein said adjustable spacer is a piezo-electric control voltage device.

50. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 48 wherein said refractive index adjuster is a voltage controlled electro-optical device.

51. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 42 further comprising:

a displacement transducer for measuring the changes in the spacing between said inner surfaces of said first and second substrates; said displacement transducer to generate a input signal for a controller; and

a controller for monitoring the tunable operation of said interferometer using said input signal generated by said displacement transducer.

52. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 42 wherein said optical converging element is chosen from the group consisting of a spherical lens system, an aspherical lens system, a gradient-index (GRIN) lens

system, any combination of the foregoing systems, and any other optical converging system constructed to collect and converge said output light beams.

53. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 52 wherein said optical converging element converges said output light beams incident thereon into a focused spot.

54. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 53 wherein said focused spot is an input aperture of an output optical fiber.

55. (CURRENTLY AMENDED) A tunable optical band pass device, comprising:

a. a first substrate having a very low absorption loss including an inner surface and an outer surface; said inner surface thereof having a very high reflective coefficient of r1;

b. a second substrate having a very low absorption loss including an inner surface and an outer surface; said inner surface thereof including: a transmission-optimized optical portion to facilitate input of light beams into said device and a reflective portion having a reflective coefficient of r2 wherein r1 is greater than r2; said outer surface thereof having a transmission coefficient of t to facilitate input and output of light beams in and out of said device; said second substrate mounted parallel to said first substrate with respective inner surfaces facing each other;

c. a beam collimating element positioned to guide ~~for guiding~~ an input light beam to travel through said optical portions of said second substrate, to: 1) hit a first point on said inner surface of said first substrate, 2) reflect off of said first point, at a near normal incidence angle, towards a second point on said reflective portion of

said inner surface of said second substrate, said second point spaced from said optical portions so as not to interfere with said input light beam, 3) hit said second point and a) partially reflect off of said second point towards said reflective portion of said inner surface of said second substrate such that there is no interference of reflected beams within said device and b) partially travel through said respective surfaces of said second substrate to generate said one of said output light beams;

d. an optical medium having a predetermined refractive index located between said inner surfaces of said first and second substrates; and;

e. an optical converging element spaced from said outer surface of said second substrate for converging said output light beams incident thereon;

f. an adjustable spacer positioned between said inner surfaces of said first and second substrates for parallel mounting of said substrates and for adjusting the spacing between said inner surfaces;

g. a refractive index adjuster for adjusting the refractive index of said optical medium;

h. a displacement transducer for measuring the changes in the spacing between said inner surfaces of said first and second substrates; said displacement transducer to generate a input signal to be used by a controller; and;

i. a controller for monitoring the tunable operation of said interferometer using said input signal generated by said displacement transducer.

56. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 55 wherein said near normal incidence angle is approximately 1 degree.

57. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 55 wherein said input light beam is a collimated light beam.

58. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 55 further comprising a first voltage source connected to said adjustable spacer for electrically adjusting the spacing between said first and second substrates.

59. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 58 further comprising a second voltage source connected to said refractive index adjuster for electrically adjusting the refractive index of said optical medium.

60. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 58 wherein said adjustable spacer is a piezo-electric control voltage device.

61. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 59 wherein said refractive index adjuster is a voltage controlled electro-optical device.

62. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 55 wherein said optical converging element is chosen from the group consisting of a spherical lens system, an aspherical lens system, a gradient-index (GRIN) lens system, any combination of the foregoing systems, and any other optical converging system constructed to collect and converge said output light beams.

63. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 62 wherein said optical converging element converges said output light beams incident thereon into a focused spot.

64. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 63

wherein said focused spot is an input aperture of an output optical fiber.

65. (CURRENTLY AMENDED) An optical band pass device, comprising:

a. a first substrate having a very low absorption loss including an inner surface and an outer surface; said inner surface thereof having a very high reflective coefficient of r1;

b. a second substrate having a very low absorption loss including an inner surface and an outer surface; said inner surface thereof including: a transmission-optimized optical portion to facilitate input of light beams into said device and a reflective portion having a reflective coefficient of r2 wherein r1 is greater than r2; said outer surface thereof having a transmission coefficient of t to facilitate input and output of light beams in and out of said device, said second substrate mounted parallel to said first substrate with respective inner surfaces facing each other and said spacing between said inner surfaces being comparable with one wavelength of light;

c. a beam collimating element positioned to guide ~~for guiding~~ an input light beam to travel through said optical portions of said second substrate, to: 1) hit a first point on said inner surface of said first substrate, 2) reflect off of said first point, at a near normal incidence angle, towards a second point on said reflective portion of said inner surface of said second substrate, said second point spaced from said optical portions so as not to interfere with said input light beam, 3) hit said second point and a) partially reflect off of said second point towards said reflective portion of said inner surface of said second substrate such that there is no interference of reflected beams within said device and b) partially travel

through said respective surfaces of said second substrate to generate said one of said output light beams;

d. an optical medium having a predetermined refractive index located between said inner surfaces of said first and second substrates; and;

e. an optical converging element spaced from said outer surface of said second substrate for converging said output light beams incident thereon.

66. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 65 wherein said near normal incidence angle is approximately 1 degree.

67. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 65 wherein said input light beam is a collimated light beam.

68. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 65 further comprising an adjustable spacer positioned between said inner surfaces of said first and second substrates for parallel mounting of said first and second substrates and for adjusting the spacing between said inner surfaces of said first and second substrates;

69. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 65 further comprising a refractive index adjuster for adjusting the refractive index of said optical medium;

70. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 68 further comprising a first voltage source connected to said adjustable spacer for electrically adjusting the spacing between said inner surfaces of said first and second substrates.

71. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 69

further comprising a second voltage source connected to said refractive index adjuster for electrically adjusting the refractive index of said optical medium.

72. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 70 wherein said adjustable spacer is a piezo-electric control voltage device.

73. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 71 wherein said refractive index adjuster is a voltage controlled electro-optical device.

74. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 65 further comprising:

a displacement transducer for measuring the changes in the spacing between said inner surfaces of said first and second substrates; said displacement transducer to generate an input signal for a controller; and

a controller for monitoring the tunable operation of said interferometer using said input signal generated by said displacement transducer.

75. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 65 wherein said optical converging element is chosen from the group consisting of a spherical lens system, an aspherical lens system, a gradient-index (GRIN) lens system, any combination of the foregoing systems, and any other optical converging system constructed to collect and converge said output light beams.

76. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 75 wherein said optical converging element converges said output light beams incident thereon into a focused spot.

77. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 76

wherein said focused spot is an input aperture of an output optical fiber.

78. (CURRENTLY AMENDED) A tunable optical band pass device, comprising:

a. a first substrate having a very low absorption loss including an inner surface and an outer surface; said inner surface thereof having a very high reflective coefficient of r1;

b. a second substrate having a very low absorption loss including an inner surface and an outer surface; said inner surface thereof including: a transmission-optimized optical portion to facilitate input of light beams into the device and a reflective portion having a reflective coefficient of r2 wherein r1 is greater than r2; said outer surface thereof having a transmission coefficient of t to facilitate input and output of light beams in and out of said device, said second substrate mounted parallel to said first substrate with respective inner surfaces facing each other and said spacing between said inner surfaces being comparable with one wavelength of light;

c. a beam collimating element positioned to guide ~~for guiding~~ an input light beam to travel through said optical portions of said second substrate, to: 1) hit a first point on said inner surface of said first substrate, 2) reflect off of said first point, at a near normal incidence angle, towards a second point on said reflective portion of said inner surface of said second substrate, said second point spaced from said optical portions so as not to interfere with said input light beam, 3) hit said second point and a) partially reflect off of said second point towards said reflective portion of said inner surface of said second substrate such that there is no interference of reflected beams within said device and b) partially travel

through said respective surfaces of said second substrate to generate said one of said output light beams;

d. an optical medium having a predetermined refractive index located between said inner surfaces of said first and second substrates;

e. an optical converging element spaced from said outer surface of said second substrate for converging said output light beams incident thereon;

f. an adjustable spacer positioned between said inner surfaces of said first and second substrates for parallel mounting of said substrates and for adjusting the spacing between said inner surfaces;

g. a refractive index adjuster for adjusting the refractive index of said optical medium;

h. a displacement transducer for measuring the changes in the spacing between said inner surfaces of said first and second substrates; said displacement transducer to generate a input signal to be used by a controller; and;

i. a controller for monitoring the tunable operation of said interferometer using said input signal generated by said displacement transducer.

79. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 78 wherein said near normal incidence angle is approximately 1 degree.

80. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 78 wherein said input light beam is a collimated light beam.

81. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 78 further comprising a first voltage source connected to said adjustable spacer for electrically adjusting the spacing between said inner surfaces of said first and

second substrates.

82. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 81 further comprising a second voltage source connected to said refractive index adjuster for electrically adjusting the refractive index of said optical medium.

83. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 81 wherein said adjustable spacer is a piezo-electric control voltage device.

84. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 82 wherein said refractive index adjuster is a voltage controlled electro-optical device.

85. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 78 wherein said optical converging element is chosen from the group consisting of a spherical lens system, an aspherical lens system, a gradient-index (GRIN) lens system, any combination of the foregoing systems, and any other optical converging system constructed to collect and converge said output light beams.

86. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 85 wherein said optical converging element converges said output light beams incident thereon into a focused spot.

87. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 86 wherein said focused spot is an input aperture of an output optical fiber.

88. (CURRENTLY AMENDED) An optical band pass device, comprising:

a. a first substrate having a very low absorption loss including an inner surface and an outer surface; said inner surface thereof including a first transmission-

optimized optical portion and a reflective portion having a very high reflective coefficient of r1; said outer surface thereof including a second transmission-optimized optical portion positioned opposite said first transmission-optimized optical portion; said first and second transmission-optimized optical portions ~~optical portion~~ to facilitate input of light beams into said device;

b. a second substrate having a very low absorption loss including an inner surface and an outer surface; said inner surface thereof having a reflective coefficient of r2 wherein r1 is greater than r2; said outer surface thereof having a transmission coefficient of t to enable output of light beams; said second substrate mounted parallel to said first substrate with respective inner surfaces facing each other;

c. a beam collimating element positioned to guide ~~for guiding~~ an input light beam to travel through said optical portions of said first substrate, to: 1) hit a first point on said inner surface of said second substrate, 2) a) partially reflect off of said first point, at a near normal incidence angle, towards a second point on said reflective portion of said inner surface of said first substrate, said second point spaced from said optical portions so as not to interfere with said input light beam and b) partially travel through said respective surfaces of said second substrate to generate said one of said output light beams, and 3) hit said second point and reflect off of said second point towards said reflective portion of said inner surface of said second substrate in such a manner that there is no interference of reflected beams within said device;

d. an optical medium having a predetermined refractive index located between said inner surfaces of said first and second substrates; and;

e. an optical converging element spaced from said outer surface of said second substrate for converging said output light beams incident thereon.

89. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 88 wherein said near normal incidence angle is approximately 1 degree.

90. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 88 wherein said input light beam is a collimated light beam.

91. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 88 further comprising an adjustable spacer positioned between said inner surfaces of said first and second substrates for parallel mounting of said first and second substrates and for adjusting the spacing between said inner surfaces of said first and second substrates.

92. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 88 further comprising a refractive index adjuster for adjusting the refractive index of said optical medium.

93. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 91 further comprising a first voltage source connected to said adjustable spacer for electrically adjusting the spacing between said inner surfaces of said first and second substrates.

94. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 92 further comprising a second voltage source connected to said refractive index adjuster for electrically adjusting the refractive index of said optical medium.

95. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 93 wherein said adjustable spacer is a piezo-electric control voltage device.

96. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 94 wherein said refractive index adjuster is a voltage controlled electro-optical device.

97. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 88 further comprising:

a displacement transducer for measuring the changes in the spacing between said inner surfaces; said displacement transducer to generate a input signal for a controller; and

a controller for monitoring the tunable operation of said interferometer using said input signal generated by said displacement transducer.

98. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 88 wherein said optical converging element is chosen from the group consisting of a spherical lens system, an aspherical lens system, a gradient-index (GRIN) lens system, any combination of the foregoing systems, and any other optical converging system constructed to collect and converge said output light beams.

99. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 98 wherein said optical converging element converges said output light beams incident thereon into a focused spot.

100. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 99 wherein said focused spot is an input aperture of an output optical fiber.

101. (CURRENTLY AMENDED) A tunable optical band pass device, comprising:

a. a first substrate having a very low absorption loss including an inner surface and

an outer surface; said inner surface thereof including a first transmission-optimized optical portion and a reflective portion having a very high reflective coefficient of r1; said outer surface thereof including a second transmission-optimized optical portion positioned opposite said first transmission-optimized optical portion; said first and second transmission-optimized optical portions ~~optical portion~~ to facilitate input of light beams into said device;

b. a second substrate having a very low absorption loss including an inner surface and an outer surface; said inner surface thereof having a reflective coefficient of r2 wherein r1 is greater than r2; said outer surface thereof having a transmission coefficient of t to enable output of light beams; said second substrate mounted parallel to said first substrate with respective inner surfaces facing each other;

c. a beam collimating element positioned to guide ~~for guiding~~ an input light beam to travel through said optical portions of said first substrate, to: 1) hit a first point on said inner surface of said second substrate, 2) a) partially reflect off of said first point, at a near normal incidence angle, towards a second point on said reflective portion of said inner surface of said first substrate, said second point spaced from said optical portions so as not to interfere with said input light beam and b) partially travel through said respective surfaces of said second substrate to generate said one of said output light beams, and 3) hit said second point and reflect off of said second point towards said reflective portion of said inner surface of said second substrate in such a manner that there is no interference of reflected beams within said device;

d. an optical medium having a predetermined refractive index located between said

inner surfaces of said first and second substrates;

e. an optical converging element spaced from said outer surface of said second substrate for converging said output light beams incident thereon;

f. an adjustable spacer positioned between said inner surfaces of said first and second substrates for parallel mounting of said substrates and for adjusting the spacing between said inner surfaces;

g. a refractive index adjuster for adjusting the refractive index of said optical medium;

h. a displacement transducer for measuring the changes in the spacing between said inner surfaces of said first and second substrates; said displacement transducer to generate a input signal to be used by a controller; and;

i. a controller for monitoring the tunable operation of said interferometer using said input signal generated by said displacement transducer.

102. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 101 wherein said near normal incidence angle is approximately 1 degree.

103. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 101 wherein said input light beam is a collimated light beam.

104. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 101 further comprising a first voltage source connected to said adjustable spacer for electrically adjusting the spacing between said inner surfaces of said first and second substrates.

105. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 101 further comprising a second voltage source connected to said refractive index

adjuster for electrically adjusting the refractive index of said optical medium.

106. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 104 wherein said adjustable spacer is a piezo-electric control voltage device.

107. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 105 wherein said refractive index adjuster is a voltage controlled electro-optical device.

108. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 101 wherein said optical converging element is chosen from the group consisting of a spherical lens system, an aspherical lens system, a gradient-index (GRIN) lens system, any combination of the foregoing systems, and any other optical converging system constructed to collect and converge said output light beams.

109. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 108 wherein said optical converging element converges said output light beams incident thereon into a focused spot.

110. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 109 wherein said focused spot is an input aperture of an output optical fiber

111. (CURRENTLY AMENDED) An optical band pass device, comprising:

a. a first substrate having a very low absorption loss including an inner surface and an outer surface; said inner surface thereof including a first transmission-optimized optical portion and a reflective portion having a very high reflective coefficient of r1; said outer surface thereof including a second transmission-optimized optical portion positioned opposite said first transmission-optimized optical portion; said first and second transmission-optimized optical portions

~~optical portion~~ to facilitate input of light beams into said device;

b. a second substrate having a very low absorption loss including an inner surface and an outer surface; said inner surface thereof having a reflective coefficient of r2 wherein r1 is greater than r2; said outer surface thereof having a transmission coefficient of t to enable output of light beams; said second substrate mounted parallel to said first substrate with respective inner surfaces facing each other and said spacing between said inner surfaces being comparable with one wavelength of light;

c. a beam collimating element positioned to guide ~~for guiding~~ an input light beam to travel through said optical portions of said first substrate, to: 1) hit a first point on said inner surface of said second substrate, 2) a) partially reflect off of said first point, at a near normal incidence angle, towards a second point on said reflective portion of said inner surface of said first substrate, said second point spaced from said optical portions so as not to interfere with said input light beam and b) partially travel through said respective surfaces of said second substrate to generate said one of said output light beams, and 3) hit said second point and reflect off of said second point towards said reflective portion of said inner surface of said second substrate in such a manner that there is no interference of reflected beams within said device;

d. an optical medium having a predetermined refractive index located between said inner surfaces of said first and second substrates; and;

e. an optical converging element spaced from said outer surface of said second substrate for converging said output light beams incident thereon.

112. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 111 wherein said near normal incidence angle is approximately 1 degree.

113. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 111 wherein said input light beam is a collimated light beam.

114. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 111 further comprising an adjustable spacer positioned between said inner surfaces of said first and second substrates for parallel mounting of said first and second substrates and for adjusting the spacing between said inner surfaces of said first and second substrates.

115. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 111 further comprising a refractive index adjuster for adjusting the refractive index of said optical medium.

116. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 114 further comprising a first voltage source connected to said adjustable spacer for electrically adjusting the spacing between said inner surfaces of said first and second substrates.

117. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 115 further comprising a second voltage source connected to said refractive index adjuster for electrically adjusting the refractive index of said optical medium.

118. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 116 wherein said adjustable spacer is a piezo-electric control voltage device.

119. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 117 wherein said refractive index adjuster is a voltage controlled electro-optical

device.

120. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 111 further comprising:

a displacement transducer for measuring the changes in the spacing between said inner surfaces of said first and second substrates; said displacement transducer to generate a input signal for a controller; and

a controller for monitoring the tunable operation of said interferometer using said input signal generated by said displacement transducer.

121. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 111 wherein said optical converging element is chosen from the group consisting of a spherical lens system, an aspherical lens system, a gradient-index (GRIN) lens system, any combination of the foregoing systems, and any other optical converging system constructed to collect and converge said output light beams.

122. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 121 wherein said optical converging element converges said output light beams incident thereon into a focused spot.

123. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 121 wherein said focused spot is an input aperture of an output optical fiber.

124. (CURRENTLY AMENDED) A tunable optical band pass device, comprising:

a. a first substrate having a very low absorption loss including an inner surface and an outer surface; said inner surface thereof including a first transmission-optimized optical portion and a reflective portion having a very high reflective

coefficient of r1; said outer surface thereof including a second transmission-optimized optical portion positioned opposite said first transmission-optimized optical portion; said first and second transmission-optimized optical portions ~~optical portion~~ to facilitate input of light beams into said device;

b. a second substrate having a very low absorption loss including an inner surface and an outer surface; said inner surface thereof having a reflective coefficient of r2 wherein r1 is greater than r2; said outer surface thereof having a transmission coefficient of t to enable output of light beams; said second substrate mounted parallel to said first substrate with respective inner surfaces facing each other and said spacing between said inner surfaces being comparable with one wavelength of light;

c. a beam collimating element positioned to guide ~~for guiding~~ an input light beam to travel through said optical portions of said first substrate, to: 1) hit a first point on said inner surface of said second substrate, 2) a) partially reflect off of said first point, at a near normal incidence angle, towards a second point on said reflective portion of said inner surface of said first substrate, said second point spaced from said optical portions so as not to interfere with said input light beam and b) partially travel through said respective surfaces of said second substrate to generate said one of said output light beams, and 3) hit said second point and reflect off of said second point towards said reflective portion of said inner surface of said second substrate in such a manner that there is no interference of reflected beams within said device;

d. an optical medium having a predetermined refractive index located between said

inner surfaces of said first and second substrates; and;

e. an optical converging element spaced from said outer surface of said second substrate for converging said output light beams incident thereon.an optical converging element spaced from said outer surface of said second substrate for converging said output light beams incident thereon;

f. an adjustable spacer positioned between said inner surfaces of said first and second substrates for parallel mounting of said substrates and for adjusting the spacing between said inner surfaces;

g. a refractive index adjuster for adjusting the refractive index of said optical medium;

h. a displacement transducer for measuring the changes in the spacing between said inner surfaces of said first and second substrates; said displacement transducer to generate a input signal to be used by a controller; and;

i. a controller for monitoring the tunable operation of said interferometer using said input signal generated by said displacement transducer.

125. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 124 wherein said near normal incidence angle is approximately 1 degree.

126. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 124 wherein said input light beam is a collimated light beam.

127. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 124 further comprising a first voltage source connected to said adjustable spacer for electrically adjusting the spacing between said inner surfaces of said first and second substrates.

128. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 127 further comprising a second voltage source connected to said refractive index adjuster for electrically adjusting the refractive index of said optical medium.

129. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 127 wherein said adjustable spacer is a piezo-electric control voltage device.

130. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 128 wherein said refractive index adjuster is a voltage controlled electro-optical device.

131. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 124 wherein said optical converging element is chosen from the group consisting of a spherical lens system, an aspherical lens system, a gradient-index (GRIN) lens system, any combination of the foregoing systems, and any other optical converging system constructed to collect and converge said output light beams.

132. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 131 wherein said optical converging element converges said output light beams incident thereon into a focused spot.

133. (PREVIOUSLY PRESENTED) An optical band pass device as in claim 132 wherein said focused spot is an input aperture of an output optical fiber.